

**REMARKS**

Claims 12, 13, 15-18, 20-23, 25, 27, 28 and 30 are pending in this application. By this Amendment, claim 12 is amended to even more clearly distinguish from the cited references, claim 17 is amended to delete a comma and claims 14 and 26 are canceled. Support for the amendment of claim 12 can be found in Applicants' specification, for example, at page 15, lines 8-10. No new matter is added by the amendments.

Examiner Behm is thanked for the courtesies extended to Applicants' undersigned attorney at the April 27 personal interview. The reasons presented at the interview as warranting forwardable action are incorporated into the remarks below which constitute Applicants' record of the interview.

Applicants note with appreciation the allowance of claims 17-18, 20-23, 25 and 30. Applicants submit that all pending claims are in condition for allowance as detailed below.

Claims 12, 14 and 16 stand rejected under 35 U.S.C. §103(a) over the De Doncker (U.S. Patent No. 5,373,195) in view of Deng (U.S. Patent No. 6,714,424). The rejection is respectfully traversed.

De Doncker when modified in view of Deng fails to disclose or render obvious the combination of features recited in independent claim 12. In particular, De Doncker in view of Deng fails to disclose or render obvious "a control device controlling a switching duty of an upper arm and a lower arm included in said voltage converter so that an influence of a dead time of said voltage converter is removed, when a voltage command value of said voltage conversion is at least a power supply voltage and at most a predetermined voltage, wherein said predetermined voltage is a product of the power supply voltage and a control period length, divided by an effective control period length, the effective control period length determined by subtracting the dead time from the control period length" as recited in independent claim 12. In rejecting Applicants' claims, the Office Action alleges that

regarding obviousness, the question is "whether the combined references, when operating in the voltage range would remove the influence of dead time." See Office Action page 2. Applicants submit that the answer to the Office Action's question is no. As explained in Applicants' specification, with an inverter having upper and lower arms, it is necessary to prevent the upper and lower arms from being turned on simultaneously. See Applicants' specification page 2, lines 5-10 and page 3, lines 10-15. The inductor  $L_f$  of De Doncker requires time to charge, which prevents timely switching of the upper and lower arms of Deng, resulting in dead time. Therefore modifying De Doncker in view of Deng would not remove the influence of dead time and would not result in the features recited in independent claim 12.

Additionally, neither Deng nor De Doncker discloses or renders obvious "said predetermined voltage is a product of the power supply voltage and a control period length, divided by an effective control period length, the effective central period length determined by subtracting the dead time from the control period length" recited in claim 12. Deng merely discloses ways to reduce the voltage range loss caused by the dead time and does not disclose or render obvious "controlling a switching duty of the upper arm and a lower arm...when a voltage command value of said voltage conversion is at least a power supply voltage and at most a predetermined voltage..." as recited in claim 12. Thus, it would not have been obvious to modify De Doncker in view of Deng to obtain the combination of features recited in claim 12. Thus, claim 12 is patentable. Accordingly, claim 16 also is patentable by its dependence on claim 12 for at least the reasons explained above regarding claim 12.

Withdrawal of the rejection is respectfully requested.

Claims 13, 15 and 26-28 stand rejected under 25 U.S.C. §103(a) over De Doncker in view of Deng, and further in view of Kanakubo (U.S. Patent No. 6,580,253). Kanakubo fails to overcome the deficiencies of De Doncker and Deng explained above regarding claim 12.

Thus, claims 13, 15, 27 and 28 are patentable by their dependence on claim 12 for at least the reasons explained above regarding claim 12. Withdrawal of the provisional rejection is respectfully requested.

Claims 12 and 14 stand provisionally rejected on the grounds of non-statutory obviousness-type double patenting over claims 1, 12 and 15 of co-pending Application No. 11/274,511. The amendment of claim 12 renders claim 12 patentably distinct from claims 1, 12 and 15 of Application No. 11/274,511. Claim 14 is canceled rendering the rejection moot with respect to claim 14. Withdrawal of the provisional rejection is respectfully requested.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of all pending claims are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



James A. Oliff  
Registration No. 27,075

Robert G. Bachner  
Registration No. 60,122

JAO:RGB/jls

Attachment:

Petition for Extension of Time  
Request for Continued Examination

Date: June 1, 2009

**OLIFF & BERRIDGE, PLC**  
**P.O. Box 320850**  
**Alexandria, Virginia 22320-4850**  
**Telephone: (703) 836-6400**

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